

2-7 Proving Segment Relationships

2-8 Proving Angle Relationships

DO NOT WRITE!

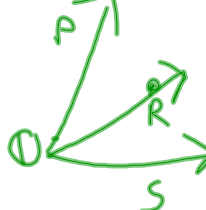
Postulate 2.8--Ruler Postulate--points on any line/segment, can be paired with any real number

Postulate 2.10--Protractor Postulate--An angle can be positioned so that one ray ends with 0 and the other is between 0 and 180.

Postulate 2.9--The Segment Addition Postulate--If B is between A and C, and A, B, and C are collinear, then $AB + BC = AC$



Postulate 2.11--The Angle Addition Postulate--If R is in the interior of $\angle PQS$, then $m\angle PQR + m\angle ROS = m\angle PQS$



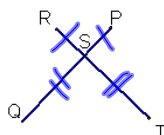
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Example 1

Given: $RS = PS$; $ST = SQ$

Prove: $RT = PQ$



Statements

Reasons

- | | |
|-------------------------------|---------------------|
| ① $RS = PS$
$ST = SQ$ | ① Given |
| ② $RS + ST = PS + SQ$ | ② Addition |
| ③ $RT = PQ$
$PS + SQ = PQ$ | ③ Segment Add Post. |
| ④ $RT = PQ$ | ④ Subst. |

Example 2

Given: $LM = NO$

Prove: $\overline{LN} \cong \overline{MO}$



Statements

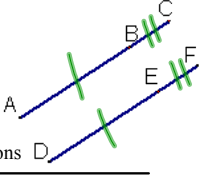
Reasons

- | | |
|---------------------------------------|------------------|
| ① $LM = NO$ | ① Given |
| ② $MN = MN$ | ② Reflexive |
| ③ $LM + MN = MN + NO$ | ③ Add. |
| ④ $LN = MO$
$MN + NO = MO$ | ④ Segm. + Post. |
| ⑤ $LN = MO$ | ⑤ Subst. |
| ⑥ $\overline{LN} \cong \overline{MO}$ | ⑥ Def of \cong |

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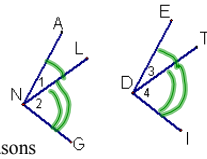
DO:
Given: $AB = DE$; $BC = EF$
Prove: $AC = DF$



Statements	Reasons
① $AB + BC = DE + EF$	① Given
② $AB + BC = AC$	② Add
③ $DE + EF = DF$	③ Segm Add Post
④ $AC = DF$	④ Subst

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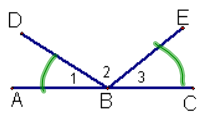
EXAMPLE 4:
Given: $m\angle 1 = m\angle 3$; $m\angle 2 = m\angle 4$
Prove: $m\angle ANG = m\angle EDI$



Statements	Reasons
① $m\angle 1 = m\angle 3$ $m\angle 2 = m\angle 4$	① Given
② $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	② Addition
③ $m\angle 1 + m\angle 2 = m\angle ANG$ $m\angle 3 + m\angle 4 = m\angle EDI$	③ Angle Add. Post.
④ $m\angle ANG = m\angle EDI$	④ Subst.

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EXAMPLE 5:
Given: $m\angle 1 = m\angle 3$
Prove: $m\angle ABE = m\angle DBC$



Statements	Reasons
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HW
p103-104 7, 12-18
p120 53

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